Challenges of nematode control in ruminants: Focus on Latin America

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Gastrointestinal nematodes (GIN) of ruminants (cattle, sheep and goats) are ubiquitous and can cause severe injuries to infected animals and significant losses in farming revenues. GIN are able to survive severe environmental and host conditions, but mankind has developed a number of ingenious methods for parasite control. The commerce and use of modern anthelmintic drugs with a broad spectrum of activity has been a solid tool for nearly 40 years but the continuous use of these drugs, however, has led to the selection of populations of drug-resistant worms worldwide. At present, the ever-growing agricultural systems in Latin America are facing many challenges and cannot rely on the far-reaching objective of parasitic elimination from the host or the environment. The lack of extensive programs for monitoring drug resistance exacerbates the negative consequences of reduced efficacy, which is evident in some areas with the increase in mortality rate even after treatment. Experts agree that new schemes of parasitic control are needed and should be based on the strategy of targeted selective treatment where affected hosts are identified and treated accordingly. In this article, we will focus our discussion on the challenges for the control of GIN in Latin America by 2020 imposed by reduced drug efficacy. We will evaluate phenotypic and molecular markers, methods for single-animal evaluation, and the implementation of schemes for anthelmintic treatment that address parasites in refugia.